

WE CLAIM:

2 1. Customer-related technical services for obtaining an optimal financial result
of a production plant by continuously applying the steps of:

- 4 a) providing a process description;
b) utilizing connected software tools and hardware tools; and
6 c) consulting an empirical database of experience.

8 2. Customer-related technical services as claimed in claim 1, wherein the step
of providing a process description is performed worldwide according to the same
criteria.

10 3. Customer-related technical services as claimed in claim 1, further
comprising the steps of:
12 utilizing homogenous forms of marketing/acquisition, standard basic contract forms,
standard offer management, mobilization, operation and demobilization.

14 4. Customer-related technical services as claimed in claim 1, further
comprising the step of:
16 performing the processes in a standardized fashion according to defaults of a manual.

18 5. Customer-related technical services as claimed in claim 1, further
comprising the steps of:
utilizing a same course of action worldwide;
20 providing best practice sharing with respect to internationally comparable standards;
and
22 introducing continuous improvement processes on a basis that is always the same.

24 6. Customer-related technical services as claimed in claim 1, further
comprising the step of:
describing internal and external processes in a manual, the internal processes run on a

26 customer plant.

28 7. Customer-related technical services as claimed in claim 6, wherein the
manual is in writing in at least one of text form and diagram form.

30 8. Customer-related technical services as claimed in claim 6, wherein the
manual is in a form readable by a personal computer and which can be printed.

32 9. Customer-related technical services as claimed in claim 8, wherein the
manual is on a CD-ROM.

34 10. Customer-related technical services as claimed in claim 6, wherein the
manual is on the World Wide Web.

36 11. Customer-related technical services as claimed in claim 10, wherein the
manual is in an encoded form that can only be retrieved by a password.

38 12. Customer-related technical services as claimed in claim 6, wherein the
manual is embedded into a virtual scene and includes simulation possibilities.

40 13. Customer-related technical services as claimed in claim 6, wherein the
manual has a portal with selection possibilities for different technical services in its
form that can be executed on the PC.

42 14. Customer-related technical services claimed in claim 6, further comprising
the step of:

44 subjecting content of the manual to a dynamic process which derives from an
integration of a dynamically growing experience database into the manual.

46 15. Customer-related technical services claimed in claim 6, wherein the

manual takes product-specific bits of information and plant-specific bits of information from experience databases from worldwide plants having a same production target and the same production methods.

16. Customer-related technical services as claimed in claim 1, wherein technical developments as well as methodical developments are a part of the experience database.

17. Customer-related technical services as claimed in claim 6, wherein the manual contains a work flow for maintenance teams.

18. Customer-related technical services as claimed in claim 1, wherein the manual suggests method groups and methods as work instructions dependent on the work flow.

19. Customer-related technical services as claimed in claim 6, wherein the manual organizes a consideration and the following implementation of the workers utilizing centers of excellence, said centers of excellence having special knowledge.

20. Customer-related technical services as claimed in claim 19, wherein the maintenance work is carried out by local units supported by the centers of excellence.

21. Customer-related technical services as claimed in claim 19, wherein the centers of excellence are distributed and networked such that it is always possible to access resources.

22. Customer-related technical services as claimed in claim 21, wherein the resources are experts.

23. Customer-related technical services as claimed in claim 22, wherein the

experts can be reached 24 hours a day.

70 24. Customer-related technical services as claimed in claim 1, wherein said
software tools are available via the World Wide Web.

72 25. Customer-related technical services, further comprising the steps of:
providing a system for implementing services with individual components which are
74 obtainable on the market, said individual components being connected to a
web-based knowledge-based database that continuously works with experience
76 values.

78 26. Customer-related technical services as claimed in claim 25, wherein the
individual components are software tools.

80 27. Customer-related technical services as claimed in claim 1, further
comprising the step of:
utilizing external data and external tools for supplementing.

82 28. Customer-related technical services as claimed in claim 19, further
comprising the step of:
84 transmitting data in an encoded fashion between the centers of excellence and the
local units.

86 29. Customer-related technical services as claimed in claim 1, further
comprising the step of:
88 improving standard software utilizing originally present experience data and improved
experience data, said standard software being supplemented by experiences
90 present in the database, utilizing worldwide knowledge therefor.

30. Customer-related technical services as claimed in claim 1, further

92 comprising the step of:

monitoring a condition of the plant utilizing remote expert centers.

31. Customer-related technical services as claimed in claim 1, further comprising the step of:
providing an application service host that is one of centrally arranged and arranged remotely connected by the Internet, distribution and data forwarding ensues worldwide.

32. Customer-related technical services as claimed in claim 31, wherein the application service host is isolated from the individual customer programs and has fire walls between the customers, so that the customer data cannot be viewed externally.

102 33. Customer-related technical services as claimed in claim 1, further
comprising the step of:
104 collecting data from all customers and OEM's in an anonymous fashion using a
central database.

106 34. Customer-related technical services as claimed in claim 33, further
comprising the step of:
108 providing non-confidential portions of said data collected from the customers
available via the World Web.

110 35. Customer-related technical services as claimed in claim 33, wherein the
central database is on distributed servers.

112 36. Customer-related technical services as claimed in claim 1, further
113 comprising the step of:
114 selecting databases by a portal.

116 37. Customer-related technical services as claimed in claim 36, wherein the
step of selecting is by menu prompting.

118 38. Customer-related technical services as claimed in claim 33, wherein the
experience database represents reference data from a provider's projects and customer
120 projects, OEM data, industrial standard data, project experience data from other
projects, standard maintenance, and standard operating plans.

122 39. Customer-related technical services as claimed in claim 1, further
comprising the step of:
124 modifying OEM defaults and utilizing modified defaults when the OEM defaults are
not advantageous for the customer.

126 40. Customer-related technical services as claimed in claim 39, wherein said
modified defaults are maintenance intervals.

128 41. Customer-related technical services as claimed in claim 1, further
comprising the step of:
internationally acquiring experience data;
130 organizing said experience data in a business-specific and system-specific manner;
and
132 using key performance data and key performance indicators.

134 42. Customer-related technical services as claimed in claim 1, further
comprising the step of:
providing feedback loops for performing the services with a start at the original plant
136 condition data.

138 43. Customer-related technical services as claimed in claim 42, wherein plant
start data serves to introduce initial measures.

140 44. Customer-related technical services as claimed in claim 43, further
comprising the step of:
142 learning within a framework of measures how the plant reacts to the initial measures;
and deriving further measures for improvement from the learning step.

144 45. Customer-related technical services as claimed in claim 43, further
comprising the step of:
entering an effect of measures into the experience database, as well as key
146 performance data.

148 46. Customer-related technical services as claimed in claim 43, further
comprising the step of:
introducing a request for changing the procedure which is business-specific into the
150 manual.

152 47. Customer-related technical services as claimed in claim 43, further
comprising the step of:
introducing modified methods and tools into the manual due to the necessary changes
154 in the procedure.

156 48. Customer-related technical services as claimed in claim 1, further
comprising the step of:
improving services by
158 a) a database,
b) a manual,
160 c) local project experiences, which are directly realized, and
d) an improvement of the software tools and hardware tools.

162 49. Customer-related technical services as claimed in claim 48, wherein said
software tools are provided by access through the World Wide Web.

164 50. Customer-related technical services as claimed in claim 1, further
comprising the step of:
166 providing that tools for improvement permanently communicate with the database.

51. A method of providing maintenance services at a plant, comprising the
168 steps of:
providing a manual of operating principles common to all plants; and
170 providing further information of operating principles common to all plants of a type of
plant.

172 52. A method as claimed in claim 51, wherein said further information is
provided through a network of computers.

174 53. A method of providing maintenance services at a plant, comprising the
step of:
176 providing processes for addressing maintenance issues at the plant for each of a
plurality of stages in a life of said plant.

178 54. A method as claimed in claim 53, wherein said stages include
mobilization, operation and demobilization.

180 55. A method as claimed in claim 53, wherein said process includes providing
tools for predetermined tasks, said tools being defined generically and being selected
182 locally to said plant.

56. A method as claimed in claim 53, wherein said processes for addressing
184 maintenance issues are driven by bottom line considerations for said plant.

57. A method for providing maintenance services at a plant, comprising the
186 step of:

188 providing a knowledge repository of information specific to plants of the type of said
plant, and
utilizing said knowledge repository to provide maintenance services to said plant.

190 58. A method as claimed in claim 57, wherein said knowledge repository is
made accessible via the World Wide Web.

192 59. A method as claimed in claim 57, wherein said knowledge repository
includes a database of information and experts selectively in communication with said
194 plant.

196 60. A method as claimed in claim 57, wherein said experts initiate
communication to said plant.

198 61. A method as claimed in claim 57, further comprising the step of:
providing teleservices for technical assistance in maintenance of said plant.

200 62. A method as claimed in claim 61, wherein said teleservices includes
providing a heads-up display and person mounted camera for remote examination of
said plant by said experts.

202 63. A method as claimed in claim 62, wherein said heads-up display includes
overlays for identification of parts of said plant.

204 64. A method for implementation of customer-related maintenance services for
an industrial system, comprising the steps of:

206 providing technical and maintenance services on a pro-active basis; and
providing modules of said technical and maintenance services wherein said modules
208 are standardized and freely combinable with one another.

210 65. A method as claimed in claim 64, wherein said modules are selectable via
the Internet.

212 66. A method of providing technical services to a customer, comprising
the steps of:
214 providing a menu of technical services offered to the customer, said technical services
being modular; and
216 performing ones of said modular technical services which are selected by the customer
as outsourced services, said services being customized according to the
customer's needs.

218 67. A method as claimed in claim 66, wherein said menu is viewable via the
World Wide Web and services listed therein are selectable via the Internet.

220 68. A method of providing technical services to a customer, comprising
the steps of:
222 performing an evaluation of a customer's technical practices and facilities;
providing a menu of available technical services to the customer, said menu including
224 modular technical services available on an outsourced basis;
making recommendations to the customer of selected ones of said modular technical
226 services based on results of said evaluation; and
providing on an outsourced basis ones of said modular services selected by the
228 customer.

230 69. A method as claimed in claim 68, wherein said menu and
recommendations are communicated to the customer via the World Wide Web.

232 70. A method as claimed in claim 68, wherein ones of said modular services
are provided via the Internet.

234 71. A method as claimed in claim 68, further comprising the steps of:
valuing compensation of said outsourced modular services depending on performance
indicators.

236 72. A method as claimed in claim 68, further comprising the step of:
providing said technical and maintenance services in three performance levels.

238 73. A method as claimed in claim 68, further comprising the step of:
providing said technical and maintenance services at a business-oriented level as well
240 as in a technology-oriented level and in an equipment level.

242 74. A method as claimed in claim 68, further comprising the step of:
universally performing the technical and maintenance services from managing,
planning and coordinating the services down to operational activities with the
244 processes implemented across all functions.

246 75. A method as claimed in claim 68, further comprising the step of:
providing condition monitoring and routine operational checks.

248 76. A method as claimed in claim 68, further comprising the step of:
providing an inventory optimization and reduction with a goal of reducing spare parts
warehousing.

250 77. A method as claimed in claim 68, further comprising the step of:
providing a shared inventory with a goal of reducing inventory investment and
252 carrying cost as well as storage, maintenance, and occupancy cost.

254 78. A method as claimed in claim 68, wherein said services are aimed to
maintain equipment manufactured by the service provider as well as OEM equipment.

256 79. A method as claimed in claim 68, wherein said services include an equipment upgrade.

258 80. A method as claimed in claim 68, wherein said services include evaluating equipment for upgrade possibilities in order to improve their functionality.

260 81. A method as claimed in claim 68, wherein said services include verifying the equipment reliability.

262 82. A method as claimed in claim 68, wherein said services include providing maintenance services aligned to the customer's changing business objectives.

264 83. A method as claimed in claim 68, further comprising the steps of: performing a maintenance business review.

266 84. A method as claimed in claim 83, wherein said maintenance business review routine includes: a standardized and repeatable assessment systematic on the basis of an assessment handbook.

270 85. A method as claimed in claim 68, further comprising the steps of: performing an equipment condition assessment according to the methods of visual inspection, offline tests and online tests.

272 86. A method as claimed in claim 68, further comprising the steps of:
274 a comparative audit including a snapshot audit at two comparative points in time, wherein the data from each snapshot audit is utilized to evaluate individual equipment categories on a predetermined 1-10 scale.

276 87. A method as claimed in claim 68, wherein each equipment category is weighted according to its criticality, the weighted-score can be summarized to provide

278 an overall equipment condition evaluation, which can be compared to other points in
time.

280 88. A method as claimed in claim 68, further comprising the steps of:
providing said services on performance-oriented contract basis.

282 89. A method as claimed in claim 68, further comprising the steps of:
providing technical support programs including services for electrical distribution
systems, automation and drives systems, and rotating equipment.

284 90. A method as claimed in claim 68, wherein said steps are implemented
according to the prescriptions of a service manual.

286 91. A method as claimed in claim 68, wherein said industrial system is one of
a airport, steel mill, hospital, mines, ship yard, large building, hotel, chemical plant,
288 cement plant, subway system, railway system, container terminal, oil drilling rig or
platform, paper mill, oil or natural gas pipeline system, lime plant, water treatment
290 plant including desalination, fresh water pipelining and waste water treatment, and
food service facilities.

292 92. A method for implementation of customer-related maintenance services for
an industrial motor system, comprising the steps of:
294 providing motor maintenance services on a pro-active basis; and
providing modules of said motor maintenance services wherein said modules are
296 standardized and freely combinable with one another.

298 93. A method of providing motor services to a customer, comprising
the steps of:
providing a menu of motor services offered to the customer, said motor services being
300 modular;

performing ones of said modular motor services which are selected by the customer as
302 outsourced services, said services being customized according to the
customer's needs.

304 94. A method of providing motor services to a customer, comprising the steps
of:
306 performing an evaluation of a customer's technical practices and facilities regarding
the motor management;
308 providing a menu of available motor services to the customer, said menu including
modular motor services available on an outsourced basis;
310 making recommendations to the customer of selected ones of said modular motor
services based on results of said evaluation; and
312 providing on an outsourced basis ones of said modular services selected by the
customer.

314 95. A method as claimed in claim 94, further comprising the steps of:
changing compensation of said outsourced modular services depending on
316 performance indicators.

318 96. A method as claimed in claim 94, further comprising the step of:
providing said technical and maintenance services in two performance levels.

320 97. A method as claimed in claim 96, further comprising the step of:
providing said technical and maintenance services at a business-oriented level as well
as in a technology-oriented level.

322 98. A method as claimed in claim 94, further comprising the step of:
universally performing the motor maintenance services from managing, planning and
324 coordinating the services down to operational activities with the processes
implemented across all functions.

326 99. A method as claimed in claim 94, further comprising the step of:
providing condition monitoring derived from a business based maintenance analysis.

328 100. A method as claimed in claim 94, further comprising the step of:
providing an inventory optimization and reduction with a goal of reducing spare
330 motors warehousing.

332 101. A method as claimed in claim 94, further comprising the step of:
providing a shared inventory with a goal of reducing motor inventory investment and
carrying cost as well as storage, maintenance, and occupancy cost.

334 102. A method as claimed in claim 94, wherein said services are aimed to
maintain motors manufactured by the service provider as well as OEM motors.

336 103. A method as claimed in claim 94, wherein said services include an motor
upgrade.

338 104. A method as claimed in claim 94, wherein said services include
evaluating motors for upgrade possibilities in order to improve their functionality.

340 105. A method as claimed in claim 94, wherein said services include verifying
the motor reliability.

342 106. A method as claimed in claim 94, wherein said services include providing
maintenance services aligned to the customer's changing business objectives.

344 107. A method as claimed in claim 94, further comprising the steps of:
performing a motor management review.

346 108. A method as claimed in claim 107, wherein said motor management

348 review routine includes: a standardized and repeatable assessment systematic on the
basis of an assessment handbook.

350 109. A method as claimed in claim 94, further comprising the steps of:
performing an motor condition assessment according to the methods of visual
inspection, offline tests and online tests.

352 110. A method as claimed in claim 94, further comprising the steps of:
a comparative audit including a snapshot audit at two comparative points in time,
354 wherein the data from each snapshot audit is utilized to evaluate individual motor
categories on a predetermined 1-10 scale.

356 111. A method as claimed in claim 94, wherein each motor category is
weighted according to its criticality, the weighted-score can be summarized to provide
358 an overall motor condition evaluation, which can be compared to other points in time.

360 112. A method as claimed in claim 94, further comprising the steps of:
providing said services on performance-oriented contract basis.

362 113. A method as claimed in claim 94, wherein said steps are implemented
according to the prescriptions of a service manual.

364 114. A method as claimed in claim 94, wherein said industrial system is one of
a airport, steel mill, hospital, mines, ship yard, large building, hotel, chemical plant,
366 cement plant, subway system, railway system, container terminal, oil drilling rig or
platform, paper mill, oil or natural gas pipeline system, lime plant, water treatment
368 plant including desalination, fresh water pipelining and waste water treatment, and
food service facilities.

115. A method of providing maintenance and maintenance management

370 services, comprising the steps of:
storing non-confidential customer information in a database; and
372 making said non-confidential customer information available over a network.

116. A method as claimed in claim 115, wherein said network includes the
374 World Wide Web.

117. A method as claimed in claim 115, wherein said database is on personal
376 computers and are made available as modules on a menu.

118. A method as claimed in claim 115, wherein said information available
378 over said network includes software modules and devices connected to said personal
computers.

119. A method as claimed in claim 115, further comprising the steps of:
obtaining best practice software information from said database; and
382 providing best practice software via the Internet.

120. A method of providing maintenance and maintenance management
384 services, comprising the steps of:
providing a menu of maintenance and maintenance management services accessible
386 over the World Wide Web; and
performing maintenance and maintenance management services selected from said
388 menu.

121. A method as claimed in claim 120, wherein one of said maintenance and
390 maintenance management services includes providing access to a program to calculate
costs of products and processes via the World Wide Web.

122. A method of providing services to plant, comprising the steps of:

providing a menu of available services to plants by an outside provider,
394 determining business impact of providing at least some of the services by said outside
provider utilizing knowledge management, and
396 providing to said plant services selected from said menu by said outside provider
utilizing knowledge management.

398 123. A method as claimed in claim 122, wherein said determining step
includes determining a bottom impact on profitability of said plant.

400 124. A method as claimed in claim 122, wherein said menu of available
services include:
402 planning of said plant, erecting of said plant, operating said plant, and managing shut-
down of said plant.

404 125. A method as claimed in claim 122, wherein said service of planning of
said plant includes searching for a site for said plant.

406 126. A method as claimed in claim 122, further comprising the step of:
providing a presentation of said menu of available services.

408 127. A method as claimed in claim 126, wherein said presentation includes a
standardized procedure for doing business, said standardized procedure being
410 presented graphically and in text.

412 128. A method as claimed in claim 122, wherein said services include
technical services.

414 129. A method as claimed in claim 122, further comprising the step of:
providing an information model, said information model including integrated tools in
communication with one another.

- 416 130. A method as claimed in claim 129, wherein said tools include local
implementations of tools.
- 418 131. A method as claimed in claim 122, wherein each of said services is a
modular standardized value added service.
- 420 132. A method as claimed in claim 122, wherein said step of determining
includes the steps of:
- 422 interviewing personnel of said plant; and
424 recommending a selection of services selected from said menu for optimum
operation of said plant based on forecasts of bottom line figures, said
recommendation being specific to said plant.
- 426 133. A method as claimed in claim 122, wherein said services include:
purchase of energy, maintaining spare parts.